Amendments to the Claims:

1. (currently amended) A method of optical network termination for removing accumulated noise in an optical network having one or more channels ~~each potentially corrupted with noise~~, said method comprising the steps of:

receiving one or more input optical signals transmitted over said one or more channels of said optical network, each channel potentially corrupted with accumulated noise;

filtering said one or more input optical signals so as to remove ~~any~~ accumulated noise; and

outputting said output optical signal onto said one or more channels on said optical network.

2. (currently amended) The method according to claim 1, wherein said step of filtering comprises the steps of:

demultiplexing said input optical signal into a plurality of individual optical channels, each said optical channel having a unique wavelength; and

multiplexing said plurality of individual optical channels so as to generate an output optical signal, wherein said steps of multiplexing and multiplexing function to remove accumulated noise from each optical channel.

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3. (original) The method according to claim 2, wherein said step of demultiplexing is operative to generate a plurality of channels each corresponding to a different wavelength.

4. (original) The method according to claim 2, wherein said step of multiplexing is operative to generate an optical signal from a plurality of channels each corresponding to a different wavelength.

5. (original) The method according to claim 2, wherein said step of demultiplexing is operative to be transparent to the bit-rate of each individual optical channel.

6. (original) The method according to claim 2, wherein said step of demultiplexing is operative to be transparent to the protocol of each individual optical channel.

7. (canceled) The method according to claim 1, wherein said step of filtering comprises providing a Fiber Bragg Grating based filter adapted to filter said one or more input optical signals.

8. (canceled) The method according to claim 1, wherein said step of filtering comprises providing one or more Optical Band Pass Filters (OBPFs) adapted to filter said one or more input optical signals.

9. (canceled) The method according to claim 1, wherein said step of filtering comprises providing one or more filters constructed utilizing polarization based devices and adapted to filter said one or more input optical signals.

10. (canceled) The method according to claim 1, wherein said optical network comprises any combination of active and/or passive optical components.

11. (original) The method according to claim 1, further comprising the step of monitoring the power level of each individual optical channel.

12. (original) The method according to claim 1, further comprising the step of equalizing the gain of each individual optical channel.

13. (original) The method according to claim 1, further comprising the step of enabling and disabling each individual optical channel in response to a corresponding control input.

14. (currently amended) The method according to claim 1, wherein said multi-channel optical network employs dense ~~wave~~ wavelength division multiplexing ~~(DFDM)~~ (DWDM) techniques.

15. (canceled) The method according to claim 1, wherein said multi-channel optical network employs coarse division multiplexing techniques.

16. (canceled) The method according to claim 1, wherein said multi-channel optical network employs wide division multiplexing techniques.

17. (original) The method according to claim 1, wherein said optical network comprises an optical ring network.

18. (canceled) The method according to claim 1, wherein said optical network comprises has a star configuration.

19. (canceled) The method according to claim 1, wherein said optical network has a mesh configuration.

20. (canceled) The method according to claim 1, wherein said optical network comprises a point-to-point based optical network.

21. (currently amended) An optical network terminator for ~~terminating~~ removing accumulated noise in an optical network, comprising:

~~a receiver for receiving one or more multi-channel optical input signals;~~

an optical demultiplexer operative to demultiplex each said input multi-channel optical signal into a plurality of individual optical channels, each said optical channel having a unique wavelength; and

an optical multiplexer operative to multiplex said plurality of individual optical channels ~~so~~ as to generate one or more output multi-channel optical signals ~~with any accumulated noise removed~~ wherein accumulated noise present at the input to said optical demultiplexer is substantially removed; ~~and~~ .

~~a transmitter for outputting said one or more output multi-channel optical signals.~~

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22. (canceled) The optical network terminator according to claim 21, wherein said optical network comprises single or multiple channel signals.

23. (canceled) The optical network terminator according to claim 21, wherein said optical network comprises any combination of active and/or passive optical components.

24. (original) The optical network terminator according to claim 21, wherein said optical demultiplexer is operative to generate a plurality of channels each corresponding to a different wavelength.

25. (currently amended) The optical network terminator according to claim 21, wherein said optical multiplexer is operative to generate an optical signal from a plurality of channels each corresponding to a different wavelength.

26. (currently amended) The optical network terminator according to claim 21, wherein said optical demultiplexer is adapted to be transparent to the bit-rate of each individual optical channel.

27. (currently amended) The optical network terminator according to claim 21, wherein said optical demultiplexer is adapted to be transparent to the protocol of each individual optical channel.

28. (currently amended) The optical network terminator according to claim 21, further comprising a monitor coupled in-line with each optical channel between said optical demultiplexer and said optical multiplexer, said monitor adapted to monitor the power level of each individual optical channel.

29. (currently amended) The optical network terminator according to claim 21, further comprising an equalizer coupled to each optical channel between said optical demultiplexer and said optical multiplexer, said equalizer adapted to equalize the optical gain of each individual optical channel.

30. (currently amended) The optical network terminator according to claim 21, further comprising an optical switch mechanism coupled to each optical channel between said optical demultiplexer and said optical multiplexer, said optical switch mechanism adapted to enable and disable each individual optical channel in response to a corresponding control input.

31. (currently amended) The optical network terminator according to claim 21, wherein said multi-channel optical network employs ~~wave~~ wavelength division multiplexing techniques.

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32. (currently amended) The optical network terminator according to claim 21, further comprising switch means adapted to virtually disconnect one or more optical fibers connecting said optical demultiplexer and said optical multiplexer thus shutting off one or more optical channels.

33. (currently amended) The optical network terminator according to claim 21, further comprising an optical attenuator placed in series with each optical channel between said optical demultiplexer and said optical multiplexer, said optical attenuator adapted to control the power level of the optical signal in each individual channel.

34. (original) The optical network terminator according to claim 21, further comprising means for reducing cross talk placed in series with each optical channel, said means operative to reduce the cross talk between adjacent optical channels.

35. (currently amended) The optical network terminator according to claim 21, further comprising gain setting means placed in series with each optical channel between said optical demultiplexer and said optical multiplexer, said gain setting means adapted to set the gain of each channel substantially equal to each other.

36. (currently amended) An optical network, comprising:

a plurality of nodes, wherein ~~a portion of said nodes employs one or more optical amplifiers~~ communications from node to node include a desired signal in addition to undesirable accumulated noise;

an optical network terminator for ~~terminating~~ removing accumulated noise in said optical network, wherein said optical network terminator comprises:

~~one or more optical receiving ports for receiving input single or multi channel optical signals;~~

an optical demultiplexer operative to demultiplex each said input multi-channel optical signals into a plurality of individual optical channels, each said optical channel having a unique wavelength; and

an optical multiplexer operative to multiplex said plurality of individual optical channels ~~so as~~ to generate an output multi-channel optical signal ~~with any noise accumulation removed; and~~ wherein accumulated noise present at the input to said optical demultiplexer is substantially removed.

~~one or more optical transmitting ports adapted to output said output single or multi channel optical signal.~~

37. (original) The network according to claim 36, wherein said optical demultiplexer is operative to generate a plurality of channels each corresponding to a different wavelength.

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38. (currently amended) The network according to claim 36, wherein said optical multiplexer is operative to generate an optical signal from a plurality of channels each corresponding to a different wavelength.[[.]]

39. (currently amended) The network according to claim 36, wherein said optical demultiplexer is adapted to be transparent to the bit-rate of each individual optical channel.

40. (currently amended) The network according to claim 36, wherein said optical demultiplexer is adapted to be transparent to the protocol of each individual optical channel.

41. (currently amended) The network according to claim 36, further comprising a monitor coupled in-line with each optical channel between said optical demultiplexer and said optical multiplexer, said monitor adapted to monitor the power level of each individual optical channel.

42. (currently amended) The network according to claim 36, further comprising an equalizer coupled to each optical channel between said optical demultiplexer and said optical multiplexer, said equalizer adapted to equalize the optical gain of each individual optical channel.

43. (currently amended) The network according to claim 36, further comprising an optical switch mechanism coupled to each optical channel between said optical demultiplexer and said optical

multiplexer, said optical switch mechanism adapted to enable and disable each individual optical channel in response to a corresponding control input.

44. (currently amended) The network according to claim 36, wherein said multi-channel optical network employs ~~wave~~ wavelength division multiplexing techniques.

45. (currently amended) The network according to claim 36, further comprising switch means adapted to virtually disconnect one or more optical fibers connecting said optical demultiplexer and said optical multiplexer thus shutting off one or more optical channels.

46. (currently amended) The network according to claim 36, further comprising an optical attenuator placed in series with each optical channel between said optical demultiplexer and said optical multiplexer, said optical attenuator adapted to control the power level of the optical signal in each individual channel.

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47. (original) The network according to claim 36, further comprising means for reducing cross talk placed in series with each optical channel, said means operative to reduce the cross talk between adjacent optical channels.

48. (currently amended) The network according to claim 36, further comprising gain setting means placed in series with each optical channel between said optical demultiplexer and said optical multiplexer, said gain setting means adapted to set the gain of each channel substantially equal to each other.

49. (original) The network according to claim 36, wherein said optical network comprises an optical ring network.

50. (canceled) The network according to claim 36, wherein said optical network comprises has a star configuration.

51. (canceled) The network according to claim 36, wherein said optical network has a mesh configuration.

52. (canceled) The network according to claim 36, wherein said optical network comprises a point-to-point based optical network.

53. (currently amended) An optical ring network, comprising:

a plurality of nodes situated around said optical ring, wherein a portion of said nodes employs one or more optical amplifiers;

an optical network terminator for ~~terminating~~ removing accumulated noise in said optical ring network, wherein said optical network terminator comprises:

~~an optical receiver for receiving an input multi-channel optical signal;~~

an optical demultiplexer operative to demultiplex ~~said~~ an input multi-channel optical signal into a plurality of individual optical channels, each said optical channel having a unique wavelength;

a plurality of optical attenuators, each optical attenuator coupled in-line to an individual optical channel, said optical attenuator operative to very the optical gain of an optical signal;

a plurality of monitors, each monitor coupled in-line to an individual optical channel, said monitor operative to measure the optical power of an optical signal; and

an optical multiplexer operative to multiplex said plurality of individual optical channels so as to generate an output multi-channel optical signal ~~with any noise accumulation removed; and~~ wherein accumulated noise present at the input to said optical demultiplexer is substantially removed.

~~an optical transmitter adapted to output said output multi-channel optical signal.~~

54. (original) The network according to claim 53, wherein said optical demultiplexer is operative to generate eight channels corresponding to eight different wavelengths.

55. (currently amended) The network according to claim 53, wherein said optical multiplexer is operative to generate eight channels corresponding to eight different wavelengths.

56. (original) The network according to claim 53, wherein said optical ring terminator is adapted to be transparent to the bit-rate of each individual optical channel.

57. (original) The network according to claim 53, wherein said optical ring terminator is adapted to be transparent to the protocol of each individual optical channel.

58. (original) The network according to claim 53, wherein said optical ring terminator is adapted to provide remote enabling/disabling of individual optical channels.

59. (original) The network according to claim 53, wherein said optical ring terminator is adapted to enable the gain equalization of said plurality of optical channels.

60. (original) The network according to claim 53, wherein said optical ring terminator is adapted to enable in-line monitoring of power level of said plurality of optical channels.

61. (canceled) The network according to claim 1, wherein said optical network employs coarse division multiplexing techniques.

62. (canceled) The network according to claim 1, wherein said optical network employs wide division multiplexing techniques.

63. (currently amended) A method of ~~optically terminating~~ reducing accumulated noise in an optical ring network having one or more channels, said method comprising the steps of:

receiving over said ring an input optical signal containing a single channel and having a wavelength associated therewith;

~~filtering said input optical signal to remove unwanted noise and to generate an output optical signal therefrom; and~~

filtering said input optical signal at a frequency corresponding to said wavelength, thereby removing said accumulated noise;

generating an output optical signal from said filtered input optical signal; and

outputting said output optical signal onto said ring.

64. (currently amended) ~~The method according to claim 1, wherein said optical network employs coarse division multiplexing techniques.~~ The method according to claim 63, wherein said step of filtering comprises the steps of:

demultiplexing said input optical signal into at least one individual optical channel, each said optical channel having a unique wavelength; and

multiplexing said at least one individual optical channel to generate an output optical signal.

65. (canceled) The method according to claim 1, wherein said optical network employs wide division multiplexing techniques.